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Bargaining around Bankruptcy: Small Business Workouts and State Law

Edward R. Morrison

ABSTRACT

Federal bankruptcy law is rarely used by distressed small businesses. For every 100 that suspend operations, at most 20 file for bankruptcy. The rest use state law procedures to liquidate or reorganize. This paper documents the importance of these procedures and the conditions under which they are chosen using firm-level data on Chicago-area small businesses. I show that business owners bargain with senior lenders over the resolution of financial distress. Federal bankruptcy law is invoked only when bargaining fails. This tends to occur when there is more than one senior lender or when the debtor has defaulted on senior debt (harming trust-based relationships with lenders). These findings raise questions about the design of and need for federal bankruptcy law.

1. INTRODUCTION

Federal bankruptcy filings are rare relative to the number of small business failures. About 540,000 small businesses closed their doors during 2003, but only 34,000 (6 percent) filed petitions under the U.S. Bank-

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ruptcy Code.[1] Many businesses, to be sure, close for reasons unrelated to financial distress and so are unlikely to be candidates for a bankruptcy filing. But the story changes little when we focus on businesses in financial distress. For every 100 such businesses that shut down, fewer than 20 file for bankruptcy. The vast majority of small businesses resolve distress under state law. They renegotiate with creditors (workouts) or invoke formal procedures for liquidating or reorganizing a business, such as assignments for the benefit of creditors (ABCs).

These alternatives to federal bankruptcy law have received limited attention in the academic literature. Workouts have been studied by Gertner and Scharfstein (1991), Gilson (1991, 1997), Schwartz (1994), White (1994), and others in the context of large corporate insolvencies. It is generally thought, however, that workouts are undermined by holdout and other coordination problems among the dispersed creditors of a large corporation (Gertner and Scharfstein 1991; Roe 1983). Coordination problems may be less important among small businesses. Adler (1997, pp. 374–75), for example, assumes that these businesses are "subject to a single dominant creditor or a coordinated group of creditors." Nonetheless, few scholars have studied out-of-bankruptcy bargains between the owner-manager of a distressed small business and its dominant creditors. This may reflect an implicit assumption that these bargains tend to break down. Baird (1993) and Adler (1997), for example, note that the going-concern value of a small or privately held business is tied to the human capital of the owner-manager. This generates a game, modeled explicitly by Baird and Picker (1991), in which the owner-manager and the senior creditor bargain over the going-concern surplus. The bargain, in these papers, is concluded in federal bankruptcy court.

The small business bargain could, however, be concluded outside federal court. This point was emphasized recently by Mann (2004) in a study of failed high-tech startups, all of which were backed by venture capital. He found that only 22 percent of these startups were liquidated under federal bankruptcy law. The remaining firms were liquidated under state law, probably using the ABC process.[2]

1. Among businesses with fewer than 500 employees, roughly 541,000 shut down between 2002 and 2003. In 2003, about 35,000 businesses (of any size) filed bankruptcy petitions. Data on shutdowns are from U.S. Small Business Administration (2006a). Data on bankruptcy filings are from Administrative Office of the U.S. Courts (2003).

2. Mann (2004) develops three theories that might explain the attractiveness of assignments for the benefit of creditors (ABCs) relative to federal law among high-tech startups and among businesses generally. First, businesses will opt for federal bankruptcy law

This paper shows that federal bankruptcy filings are equally rare among distressed small businesses generally. Using unique data on distressed businesses located in Cook County, Illinois, I find that federal law was used by only 16 percent of corporations and 20 percent of noncorporate entities prior to liquidating or reorganizing. I also find that one state procedure, the ABC, is nearly as popular as federal bankruptcy law.

The paper also identifies conditions under which small businesses opt for the federal code instead of state law alternatives. Following Schwartz (1994) and White (1994), I model the choice between state and federal law as the outcome of a bargaining game. State procedures, such as workouts and ABCs, typically generate lower transaction costs than does a federal bankruptcy case. The procedures may also create an opportunity to divert value from dispersed unsecured creditors whose claims are too small to induce these creditors to monitor a state or federal insolvency process. Coordination problems will also make it difficult for these creditors to organize an involuntary bankruptcy filing.[3] A distressed small business will, therefore, opt for state procedures if its owner-manager and senior lenders can agree on a division of the surplus generated by state procedures.

If a firm has no senior lenders—that is, if its debts are held entirely by dispersed unsecured creditors with relatively small claims—the owner-manager will always choose state procedures and capture the surplus for herself. If the firm has one senior lender—a secured creditor or a large unsecured lender—the owner will need the lender's consent before invoking a state procedure. The parties will therefore bargain over the surplus. Bargaining may break down, and a federal bankruptcy filing result, for the same reasons that any lawsuit may fail to settle out of court: the lender may distrust the owner's disclosures about the value

when they seek greater leverage in negotiations with landlords and other contractual counterparties. The code, Mann notes, gives the debtor a unique opportunity to enforce leases that would be unenforceable under state law and to terminate leases without incurring the same liability that would arise under state law. Second, a business will opt for federal law when it has made preferential payments to some creditors, to the disadvantage of others. The Bankruptcy Code, Mann argues, offers a relatively low cost procedure for recovering these payments. Finally, Mann hypothesizes that the popularity of ABC procedures will vary by state because the procedures are more heavily regulated in some states than in others. The less heavily the procedure is regulated, he reasons, the cheaper it is and the more likely it will be used instead of federal law.

3. Generally, an involuntary bankruptcy petition needs the support of at least three creditors who, together, have unsecured claims worth at least $13,475 (11 U.S.C. sec. 303[b][1] [2008]).

of the firm's assets, the owner may be overly optimistic about her payoffs in a bankruptcy case (especially a Chapter 11 reorganization), or the parties may simply make a mistake. If the firm has multiple senior lenders, the risk of bargaining failure grows because of holdout problems.[4]

I test this theory using firm-level data from a random sample of distressed small businesses located in Cook County. Among corporations in these data, I find that the probability of a bankruptcy filing doubles when the firm has secured debt, consistent with the simple bargaining model. The probability rises even further when the firm must negotiate with multiple secured lenders, which is also consistent with the theory that coordination problems increase the likelihood of bargaining failure. Finally, the probability of bankruptcy doubles if, in addition to having multiple lenders, the small corporation has defaulted on multiple bank loans. I interpret the latter pattern as evidence that a firm is more likely to enter bankruptcy when senior lenders distrust the owner's disclosures. A small business's access to credit depends heavily on its relationship with senior lenders. The closer the relationship, the lower the information asymmetry between the lender and borrower. When a firm defaults on bank debt, it undermines its relationship with senior lenders and, consequently, reduces the expected quality of information provided to lenders.

These dynamics help explain the rarity of bankruptcy among corporations. Little, however, can be said about the rarity of bankruptcy among noncorporate entities, such as proprietorships and partnerships. Firm-level data show that these businesses are nearly 50 percent more likely to enter bankruptcy when they have defaulted on bank debt, but they are no more or less likely to enter bankruptcy when they carry secured debt or have borrowed from multiple creditors. To some extent,

4. Although not explored here, the risk of bargaining failure may also depend on the characteristics of state law procedures, which vary substantially across the United States. An ABC, for example, is regulated by statute and overseen by courts in New York; it is unregulated and requires no court involvement in Illinois. If a distressed firm is indebted to both insiders and third-party creditors but pays the insiders first, state law authorizes creditors to sue insiders in Massachusetts but not in Pennsylvania. Some state laws, then, offer greater protection to creditors than do others. As Mann (2004) notes, these protections generate transaction costs and could make state procedures less attractive than the federal code. But they could also make the state procedures more attractive because they give creditors greater authority to audit the firm and root out forms of self-dealing. If a firm has a single senior lender, but the lender distrusts the owner's disclosures, the risk of bargaining failure—and the corresponding likelihood of a federal bankruptcy filing—may be lower in states that give the lender greater authority to audit the business and sue the owner if self-dealing is discovered.

this may be unsurprising. A corporation can discharge its debts using state law procedures simply by dissolving itself: once the corporation dissolves, claims against it are effectively discharged. But the owner of a proprietorship or partnership remains liable after the business entity dissolves. This fact suggests that, in future work, data on noncorporate entities should be analyzed using a bargaining model that accounts for the owner's personal liability.

These observations have implications for bankruptcy theory and policy. First, consistent with the work of Adler (1993) and Schwartz (1997, 1998), they show that corporations can, and often do, adopt capital structures that avoid the need for federal bankruptcy filings. Although federal bankruptcy law does serve the functions traditionally assigned to it—remedying collective action and other coordination problems under state law (Jackson 1986, pp. 7–19; Baird 1987)—these functions are rarely needed by small business corporations.

In addition, this paper supports several theoretical arguments in the corporate finance literature. The empirical results, for example, show that a bankruptcy filing is more likely when a firm has multiple senior lenders, not multiple junior lenders. This is consistent with the claim, made by Bris and Welch (2005), that financial distress is more costly when a firm's debt is concentrated in the hands of a few dominant lenders than when it is dispersed across a large number of claimants.

Finally, the results in this paper raise questions about current U.S. policy regarding small business failure. Small businesses with fewer than 100 employees account for over 36 percent of employment and 27 percent of annual revenue generated by all businesses in the U.S. economy.[5] The federal government maintains a variety of policies designed to help these businesses get started and to regulate their failure (many of these policies are implemented by the Small Business Administration). These policies assume, implicitly, that the Bankruptcy Code can be used to regulate failure. Recent amendments to the code, for example, impose reporting obligations, deadlines, and other burdens on Chapter 11 debtors in order to improve payoffs to unsecured creditors (see Section 6). These amendments ignore the decision-making process of businesses choosing between state and federal procedures. Any regulation that increases the burdens of federal bankruptcy law will make state law alternatives more attractive. The recent amendments, then, may yield per-

5. The annual employment statistic reflects 2003 data; the revenue statistic reflects 2002 data. See U.S. Small Business Administration (2006b).

verse outcomes for many firms: instead of increasing payoffs to unsecured creditors, the amendments may only reduce aggregate payoffs as these businesses substitute away from the code and toward state law. Federal bankruptcy policy, then, should focus not only on federal law itself but also on likely substitution effects toward state law alternatives.

The paper is organized as follows: Section 2 documents the rarity of federal bankruptcy filings. Section 3 presents a simple model that isolates the important differences between state and federal law and the tradeoffs facing a distressed small business. Section 4 summarizes the model's empirical implications, Section 5 tests these implications, Section 6 discusses the results, and Section 7 concludes.

2. BANKRUPTCY'S RARITY

Most discussions of small business distress assume that federal bankruptcy law is the primary mechanism for resolving distress. That assumption is counterfactual. Every year, hundreds of thousands of businesses close their doors, but only tens of thousands file petitions under the Federal Bankruptcy Code.

The rarity of small business bankruptcy has been questioned by Lawless and Warren (2005), who argue that the annual number of federal business filings is dramatically understated, owing to poor record keeping by the Administrative Office of the U.S. Courts (AO), which assembles the PACER database. Instead of assessing whether a debtor's liabilities are primarily business debts, the AO relies on self-reporting. This is problematic because most debtors submit their federal bankruptcy filings using software that by default treats all debt as consumer debt (Lawless and Warren 2005, pp. 767–71). Because the classification of liabilities—business or consumer—matters little to most debtors (and their lawyers), few alter the default setting. Put differently, even when an individual debtor has significant business debt, her lawyer will typically use software designed for debtors with primarily consumer debt. The result is that many cases involving business debts are classified, for AO purposes, as consumer cases.

The underreporting problem is surely important, but it is not a complete explanation for the rarity of federal business bankruptcy filings. These filings were rare even before bankruptcy lawyers began using consumer-oriented software in the early 1990s. In 1990, for example,

Table 1. Auctions Listed in the *Chicago Tribune* "Auction Mart" during 1998

Auction	*N*	%
Total	302	
Auctions mentioning company name	254	
Bankruptcy filings	35	13.8
Listings mentioning assignment for the benefit of creditors	34	13.4

business bankruptcy filings amounted to only 12 percent of all business failures.[6]

Table 1 offers further proof that these aggregate patterns, drawn from government records, coincide with actual practice. Every Monday and Wednesday, the Business Section of the *Chicago Tribune* publishes announcements of business auctions. The announcements—collected under the heading "Auction Mart"—typically identify the name of the business, its location, the nature of its assets, and the date of the auction. The announcement may also indicate whether the auction is pursuant to a bankruptcy court order. Figure 1 reproduces a typical "Auction Mart" page. I collected data from every "Auction Mart" published during calendar year 1998. Table 1 summarizes the results. About 300 auctions were announced, but a business name was given in only 254 cases. For each named business, I determined whether it had filed a federal bankruptcy petition in the Northern District of Illinois (which encompasses Cook County) during the preceding 5 years. This was true in only 35 cases, which implies that federal bankruptcy law was used by only 13.8 percent of businesses being auctioned, which suggests that a significant fraction of distressed businesses resolve distress without resorting to federal law. In another 34 cases, the auction announcement indicated that the business was being sold off in conjunction with an ABC. This state procedure, then, was as common as federal bankruptcy law. Indeed, it is highly likely that far more than 34 of the 254 businesses were auctioned off pursuant to an ABC. Although an ABC auction must be announced publicly, usually in a newspaper, there is no requirement that the announcement indicate that the auction is part of an ABC.

6. I computed this figure by dividing total business filings, as reported by Administrative Office of the U.S. Courts (2002), by the total number of business closures, as reported by U.S. Small Business Administration (2006a).

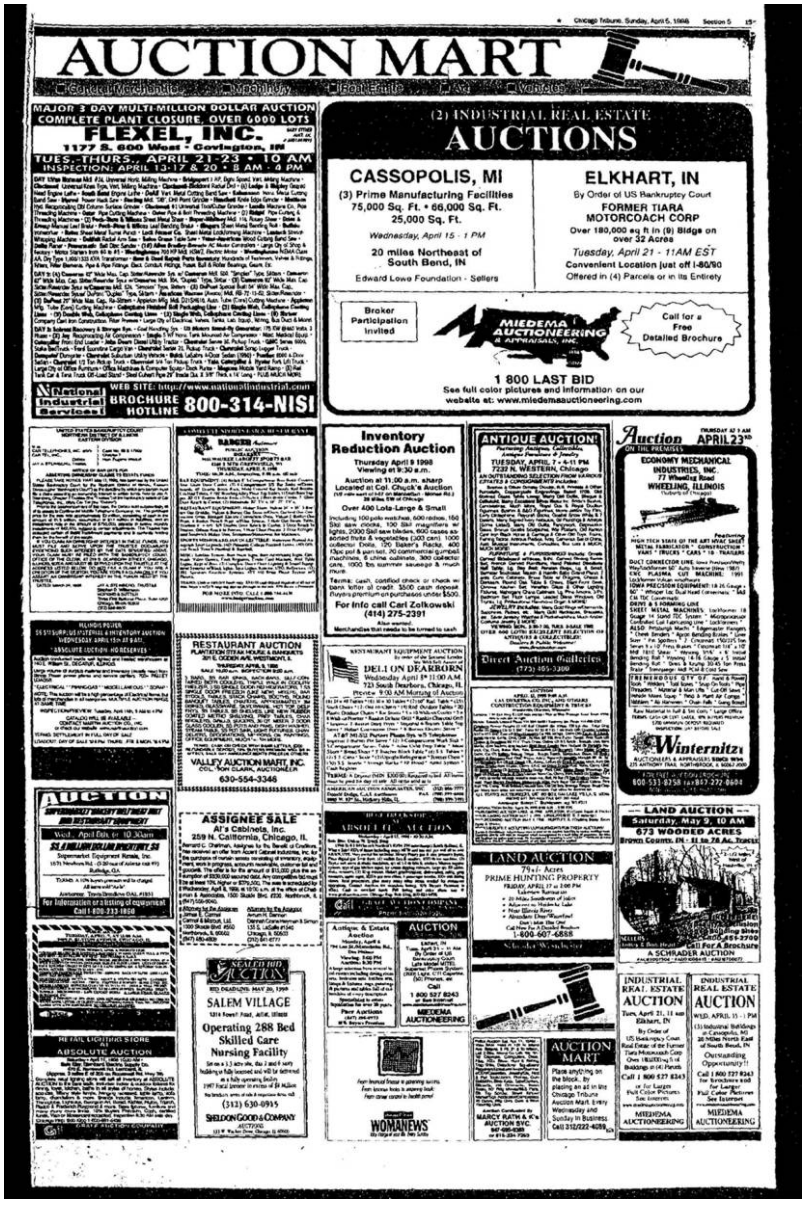

Figure 1. Sample of the *Chicago Tribune* "Auction Mart" (April 5, 1998)

3. THEORY

Broadly speaking, federal law offers a relatively costly mechanism for auditing distressed business and distributing payments to creditors. State procedures are cheaper—they generate lower administrative expenses and are faster and more private. But they are also less transparent. Debtor businesses reveal less about their capital structures and can potentially hide insider self-dealing and preferential treatment of particular creditors.

State procedures will often be preferred by owner-managers. They receive little payoff in federal bankruptcy court because the outstanding debt typically exceeds the value of the firm's assets and the code's absolute-priority rule forbids payments to equity holders unless creditors are paid in full. Owners can benefit from a federal bankruptcy case if the absolute-priority rule is violated (which seems to occur frequently, as shown by Bris, Welch, and Zhu [2006]) or if the owner continues running the business in bankruptcy (Baird and Morrison 2005). But the same benefits may be available at lower cost under state procedures. Because a federal case imposes significant costs on creditors, senior lenders will be willing to pay owner-managers not to file a federal bankruptcy petition. If the payment exceeds any benefits the owner might receive in federal court, the owner will agree to use state insolvency procedures instead.

But state procedures may not always be cheaper for senior lenders. These procedures require the consent of secured creditors and lienholders. If these parties are large in number, coordination costs and holdup problems may eliminate the gains from state procedures. In addition, it may be difficult to audit a small business outside of a federal bankruptcy case. The bankruptcy judge and U.S. Trustee can force the debtor to reveal information about the business and its past transactions (11 U.S.C. sec. 521). Creditors can also use the bankruptcy process to unwind transactions that favored insiders or third parties (11 U.S.C. sec. 547 permits a trustee or the debtor in possession to recover these preferential transfers). Bankruptcy law, in other words, protects creditors from insiders as well as from other (insider-favored) creditors. Outside federal court, it may be impossible or very costly for creditors to conduct a similarly rigorous audit. Thus, if senior lenders think that the owner possesses private information about the value of business assets, they may prefer a federal bankruptcy case to state procedures.

A business's choice between state and federal law, then, is the product

of a bargaining game between debtors and their senior lenders. The dynamics of this game will depend heavily on the characteristics of state law. These dynamics are best illustrated in the context of a simple model that is close in spirit to the games studied by Baird and Picker (1991) and Schwartz (1994).

3.1. A Simple Model

Consider a distressed small business corporation with a simple capital structure: it has borrowed s on a secured basis from a bank and u on an unsecured basis from n trade creditors with identical claims. The business is distressed because total debt, $s + u$, exceeds the value of its assets a.

3.1.1. Federal Bankruptcy. At any time, the debtor can file a federal bankruptcy petition. The filing initiates an automatic stay, that is, an injunction prohibiting creditor collection efforts (11 U.S.C. sec. 362). This injunction gives the debtor time to liquidate assets (often under Chapter 7) or commence a bargaining process that may allow the debtor to readjust its capital structure (Chapter 11). Creditor consent is unnecessary. Indeed, the very purpose of the automatic stay is to force nonconsenting creditors to participate in a collective proceeding.

A federal bankruptcy petition will generate transaction costs t_1 for the debtor and t_2 for the bank, which must hire professionals to monitor the case. If the debtor does file a petition, the payoffs to the creditors and owners will be dictated largely by the Bankruptcy Code's absolute-priority rule (11 U.S.C. sec. 1129[b]), although the owner may be able to extract a small payoff b. This payoff can be viewed as a "bribe" to induce the owner to speed up the bankruptcy process, or it can be viewed as the owner's bargained-for share of any going-concern surplus (see Baird and Picker 1991, pp. 337–38). Secured creditors will receive the value of their collateral; unsecured creditors will share pro rata in the remaining value of the firm, minus the payoff extracted by the owner.[7]

In federal bankruptcy court, then, the bank's net payoff will be $s_b = \min\{s, a - b - t_1\} - t_2$. If value remains after paying the bank, unsecured creditors will each receive $u_b = (a - b - s - t_1)/n$. The owner will

7. There are important complications, however. Among unsecured creditors, sections 507 and 726 of the code establish an additional priority scheme. Tax claims, for example, receive eighth priority, meaning that tax collectors receive payment only if sufficient assets exist to pay higher priority unsecured claims first (such as administrative costs and certain employee wage and benefit claims). If sufficient assets do exist, tax claims will be paid in full before any value is shared with general trade creditors.

receive $o_b = b$. I am assuming here that the owner has not personally guaranteed the debts of the business, which occurs frequently. If the owner has personally guaranteed debts, or if the business is structured as a proprietorship or partnership that lacks the limited liability of a corporation, the creditors' payoffs will depend on the value of both the business's assets and the owner's personal assets.

3.1.2. State Procedures. Instead of filing a federal bankruptcy petition, the debtor could use state procedures to resolve distress. Many procedures are available. They include simple foreclosures, in which a bank seizes and forces a sale of business assets; bulk sales, in which the debtor sells most or all of its business to a third party and distributes proceeds to creditors; and ABCs, in which the debtor assigns its business to a trustee or assignee, who sells the business and distributes proceeds to creditors (Chatz and Levy 2008). These procedures can be used to liquidate or reorganize the business (Cohen and Challacombe 1990, p. 271; Kupetz 2003, p. 18; Rally Capital Services 2009). To illustrate, suppose the debtor would like to reorganize via an ABC. To do this, the owner-manager will assign the business to an assignee and, at the same time, enter an operating agreement in which the assignee agrees to employ the owner-manager to run the business while the assignee prepares to auction it off. At the auction, the owner-manager (or a new entity in which the owner has a controlling interest) can bid on the assets, perhaps with financing offered by a senior lender, which rolls over its claim.[8] If she offers the high bid—and she may be the only bidder at the auction[9]—she will regain control of her firm. Importantly, the firm's capital structure will have changed radically. Security interests and liens will remain; they travel with the assets (Chatz and Levy 2008). But unsecured debt will have been washed away.[10]

8. Stromberg (2000) observed the same phenomenon in Sweden, which auctions off all firms in bankruptcy.

9. The ABC auctions likely share many of the infirmities seen in nonjudicial foreclosure auctions, which are discussed by Nelson and Whitman (2004).

10. The same outcome could be achieved in other ways. The owner-manager could, for example, permit the bank to foreclose and then repurchase the assets at the foreclosure sale. But, relative to ABC, a foreclosure is typically unattractive to a debtor because she exercises less control over the asset sale. The foreclosing creditor or a government official will auction the assets. In addition, the owner-manager will be unable to continue running the business after foreclosure. Even if she is able to repurchase the business at auction, the delay between foreclosure and repurchase may be long enough to cause serious harm to the business. A creditor may also prefer ABC over a foreclosure, as Berman (1993) explains, because the ABC auction is conducted by an assignee, not the creditor, which insulates the creditor from potential lender liability.

These state procedures typically require the consent of senior lenders. In the ABC process, for example, the debtor assigns assets to an assignee subject to existing liens (Chatz and Levy 2008). Thus, nothing stops a bank or other secured creditor from exercising its ordinary foreclosure rights. Most loan agreements, for example, declare that default occurs automatically when the debtor files a federal bankruptcy petition or conducts an ABC.[11] The assignment process triggers this covenant, allowing the creditor to commence collection efforts and enforce security interests.

Junior creditors, however, have little power to interfere with the ABC process. Their consent is not required; it is presumed because the process creates a trust that will divide assets equitably among the creditors (for summaries of state laws regulating ABCs, see Glenn 1935, pp. 172–213; Hanna 1949). Unsecured creditors can sue the assignee for breach of fiduciary duties, but the incentive to monitor the ABC process will be very low for most unsecured creditors, whose claims will be small relative to the costs of monitoring. Unsecured creditors could try to halt the ABC process by filing an involuntary bankruptcy petition. However, it is rare for creditors to attempt this, as Alper (2007, p. 1936) discusses, because an involuntary petition requires coordination among at least three creditors whose unsecured claims exceed $13,475 (11 U.S.C. sec. 303[b][1]). Because most unsecured creditors have small claims, coordination problems will deter an involuntary filing. Another deterrent is the possibility that, once the involuntary petition is filed, the bankruptcy court will dismiss the case because it believes the ABC process is adequate (Buckley and Sterling 2003).

State procedures typically generate lower transaction costs than does a federal bankruptcy petition. The administrative costs of a federal bankruptcy case, which include court fees and the professional fees of attorneys, can consume up to 10 percent of firm value (Bris, Welch, and Zhu 2006, p. 1287). In a study of cases filed in the District of Arizona and Southern District of New York between 1995 and 2001, most of which were small business cases, Bris, Welch, and Zhu (2006, pp. 1281–82) found that the administrative costs of a Chapter 7 case averaged about $12,000 while a Chapter 11 case averaged about $30,000. In print, many practitioners and other observers—including Cohen and Challacombe (1990, p. 270), Kupetz (2003, p. 18), Mann (2004, pp.

11. This observation is based on an interview with anonymous attorney on April 27, 2006.

1392–93), and Scalambrino (2004)—have stated that state procedures are cheaper. The cost savings come from several sources. First, because state procedures are often managed by professional assignees, not courts, there are fewer procedural roadblocks that slow the process. In addition, the procedural hurdles in bankruptcy court—court fees, formal notice to creditors, oversight by the U.S. Trustee—generate administrative costs that are avoided in many state procedures (Mann 2004, pp. 1392–93).[12]

For simplicity, and without loss of generality, we can normalize the costs of state procedures to equal zero. Creditors' priorities under state law are largely similar to their priorities in bankruptcy. Secured creditors will be paid first; unsecured creditors will be paid out of the remaining assets.[13] There are a few exceptions to this rule.[14]

Returning to the simple model, the bank and owner will generally prefer state procedures because they yield the same outcomes (liquidation or reorganization) at lower cost. The bank can avoid its own costs t_2; the business can avoid costs t_1. The total savings, $t \equiv t_1 + t_2$, will be split between the bank and owner because the owner can credibly threaten to file a bankruptcy petition if she does not receive some share of the gains. Let δ denote the owner's share. Let the payoff to unsecured creditors be u_p. Assuming unsecured creditors receive the same payoff under state procedures as they do in federal court ($u_p = u_b$, an assumption relaxed in the next subsection), the bank's payoff will be

$$s_p = \min\{s,\ a - b\} + (1 - \delta)t.$$

The owner-manager's payoff will be $o_p = b + \delta t$. These equations yield two observations. First, state procedures allow the owner-manager to enjoy a further deviation from the absolute-priority rule—a payoff even when unsecured creditors are not paid in full—because the senior lender

12. In addition, the owner-manager often waits to commence state procedures until she has found a buyer for the business (the buyer may be a new corporation organized by the owner-manager).

13. Creditor priorities under state law are largely determined by contact. Priorities under federal law are largely the same, with some important exceptions (see 11 U.S.C. secs. 507, 725, 726, 1129). On the correspondence between state and federal law for creditors of a distressed corporation, see Adler (2004).

14. One involves the Internal Revenue Service (IRS), which can demand the right to be paid in full before any other unsecured creditor receives payout (31 U.S.C. sec. 3713). The IRS does not receive as high priority in bankruptcy (11 U.S.C. sec. 507[a][8]). Many owner-managers are personally liable for business tax debts because they failed to ensure that the business delivered payroll withholding taxes to the federal government. Because the IRS receives greater priority under state law than in bankruptcy court, the owner-manager may prefer a state proceeding in order to minimize her personal liability.

and manager share the costs saved by not invoking federal law. This deviation would occur even if $b = 0$. The more costly federal law is, the greater the gains to the senior lender and manager and the lower the payoffs to unsecured creditors.

Second, if the business has no secured debt, the owner will always choose state procedures and keep for herself the costs avoided, t_1. Empirically, then, firms with no secured debt should be highly likely to choose state procedures. Firms with one secured creditor should also be highly like to choose state procedures, unless bargaining costs are high, perhaps because of asymmetric information. I consider this possibility in Section 3.2.

3.1.3. Diverting Value from Unsecured Creditors. The senior lender and manager might try to divert the unsecured creditors' payoff, u_p, to themselves. This will be especially attractive if it is costly for unsecured creditors to identify firms with assets sufficient to yield payoffs in bankruptcy—that is, firms for which $u_b = (a - b - s - t_1)/n > 0$. To illustrate, assume there are two types of businesses: type L firms with assets worth a_1 and type H with assets a_h, where $a_h > a_1$. An unsecured creditor can observe the two types but must incur cost c to verify this information (c could, for example, represent the cost of filing an involuntary bankruptcy petition). Because the assets of type L firms have low value, the verification cost c may exceed any payoff to the unsecured creditor from a federal bankruptcy filing; that is, $u_{b1} = (a_1 - b - s - t_1)/n \leqslant c$. If so, unsecured creditors will not threaten to force these firms into federal bankruptcy court even if their payoffs under state procedures u_{p1} are below what they would receive in bankruptcy. Knowing this, senior lenders and managers will divert any excess firm value to themselves, leaving little or nothing for unsecured creditors. (A third party might enter this market and recapture these gains. It might, for example, offer to monitor debtors in exchange for a payment equal to c/n from each unsecured creditor. Under these conditions, type L firms would be forced into bankruptcy only if $u_{b1} > c/n$.)

In practice, type L firms may be large in number. Data from bankruptcy courts suggest that very few businesses have sufficient assets to ensure a nontrivial payoff to unsecured creditors. In Chapter 7 filings, which make up about 60 percent of all business filings (Administrative Office of the U.S. Courts 2003), the typical payoff to unsecured creditors is about 1 percent of the face value of the debt (Bris, Welch, and Zhu 2006, p. 1290), and most of this is likely paid to tax collectors (Baird,

Bris, and Zhu 2005). The payoffs in Chapter 11 cases are rarely much larger. As Morrison (2007, p. 392, table 6) shows, about 70 percent of Chapter 11 cases are dismissed or converted to Chapter 7 cases. Among cases that culminate in a reorganization, Baird, Bris, and Zhu (2005, pp. 22–23) show that the payoff to nontax, unsecured claims is zero in about 40 percent of cases and less than 10 percent overall among filings by small businesses (those with assets worth less than $1 million). The payoffs to unsecured creditors, then, are small in bankruptcy.

These statistics suggest that unsecured creditors will rarely object to state procedures because bankruptcy cases rarely yield nontrivial payoffs. Moreover, unsecured creditors may not find it cost-effective to monitor debtors and object when a federal bankruptcy case would yield larger payoffs than would a state procedure. This will make state procedures attractive to debtors, who can capture value that would be paid to unsecured creditors in bankruptcy court.[15]

The foregoing analysis assumes, however, that state proceedings discharge creditors' claims and that they cannot subsequently bring suit against the owner-manager personally. A suit against the owner-manager would be possible if she had guaranteed the business debts or if the business were organized as a proprietorship or partnership. The gains to the owner-manager from state procedures will be highest when the business is a corporation and the owner has not guaranteed the debts.

3.2. A Richer Model

The model thus far implies that state procedures will always be chosen when a debtor suffers distress: senior lenders and managers receive higher payoffs under state procedures than in federal court; unsecured creditors may receive slightly lower payoffs but have no incentive to force debtors into federal court. The model, however, makes two assumptions: (1) there is only one senior lender, the bank, and (2) the senior lender has perfect information about the debtor's assets. When these assumptions are relaxed, a distressed business may choose federal bankruptcy law instead of state procedures.

3.2.1. Multiple Lenders. When a business has multiple senior lenders—

15. State procedures, such as ABCs, have long been seen as devices to shield insider self-dealing, preferential payments to favored creditors, or other prepetition conduct that would not withstand scrutiny in a federal bankruptcy court. Several (anonymous) practitioners described ABCs in precisely these terms. The same theme is echoed by Weintraub, Levin, and Sosnoff (1953, p. 4): "The general weakness of the out-of-court proceeding . . . is its susceptibility to abuse."

several banks plus tax collectors and landlords—the likelihood of bargaining failure increases. The gains from using state procedures—in the form of costs avoided—must be divided among the lenders and shared with the owner-manager to induce her to avoid a federal filing. Bargaining over this surplus can lead to holdout problems because each party knows that its consent is required before a state procedure can be finalized. Each player—the lenders and the owner—will delay consenting to state procedures in order to extract a greater fraction of the transaction costs avoided. Bargaining can also be costly. As the number of senior lenders increases, so do the coordination costs, which may swamp the gains from state procedures.[16] If these kinds of problems are severe, a debtor may be unable to use state procedures and be compelled to use federal bankruptcy law.[17]

3.2.2. Asymmetric Information. The likelihood of a federal bankruptcy filing may rise when it is costly for senior lenders to verify the value of a debtor's assets. Secured creditors have relatively strong information about a business. As Scott (1986) and Triantis (1992) have shown, a primary function of secured debt is to overcome information asymmetries: a security interest gives the lender power to monitor the business, influence management prior to failure, and sanction misbehavior by seizing firm-specific assets. The lender's broad hostage-taking power gives the borrower strong incentives to disclose information and manage the business prudently. Information asymmetries are not, of course, eliminated by secured debt. Lenders may have incomplete information about insider self-dealing or the debtor's potential liability to third parties (for example, torts).[18] When a firm's owners have private information about the value of assets, a secured lender may prefer federal bankruptcy law as a mechanism for verifying asset value. The incentive to use federal law will be even stronger when there are multiple secured creditors, who may have different beliefs about asset value.

As Webb (1987), Smith and Stromberg (2005), and others have em-

16. Mann (2004) hypothesized a similar dynamic, arguing that federal procedures will be most attractive to larger businesses with more complicated capital structures.

17. The same point is made by Jackson (1982, p. 867): "The formal bankruptcy process would presumably be used only when individualistic 'advantage-taking' in the setting of multi-party negotiations makes a consensual deal too costly to strike—which may occur frequently as the number of creditors increases."

18. A large literature, including Berger and Udell (1995) and Petersen and Rajan (1994), documents the importance of alternative mechanisms for overcoming information asymmetries. One much-discussed mechanism is relationship-based lending.

phasized, federal bankruptcy law serves an important auditing function. A federal court offers a venue in which a debtor's assets and liabilities can be rigorously verified. After commencing a federal bankruptcy case, the debtor or its trustee must file various reports (see 11 U.S.C. sec. 521). These lay bare the business's financial position and operating history (a trustee manages the debtor's assets in a Chapter 7 case). If the owner of the business fails to submit this information, the case will typically be dismissed.[19] If the owner conceals information, she will be sanctioned for contempt of court (see Fed. R. Bankr. P. 9020). In addition, the debtor or trustee is empowered to search for and attack insider self-dealing and eve-of-bankruptcy payments to favored creditors (see, for example, 11 U.S.C. secs. 544, 547, 548). Both actions protect the rights of creditors to receive payment before equity holders and to receive equal treatment among creditors of equal contractual priority. They also provide a mechanism that protects senior creditors from self-dealing by insiders and preferential treatment of junior creditors.

It may be more costly (or impossible) to conduct a rigorous audit under state law. Return to the simple model of bargaining between the senior lender and the owner of a distressed business. Suppose the lender believes that the owner may be concealing information about the value of business assets. The lender could enter a contract with the business, offering to share the gains from using state procedures if the owner consents to an audit of the business. But audits are expensive, and the expense will deter a lender from auditing every distressed business. Instead, it will likely audit a random sample of firms, hoping to deter owners from concealing information.

An audit in bankruptcy court may be cheaper for senior lenders. When the lender audits a business outside federal court, it bears fully the costs of the audit. When an audit is conducted in bankruptcy court, the costs are shared with unsecured creditors. Indeed, the administrative expenses of a bankruptcy case must be paid in full before unsecured creditors receive any payout. Thus, even if an audit under state law would be cheaper than one in federal court, a senior lender might still prefer a federal court audit if its share of the auditing costs are lower.

Even if we put aside these cost-sharing issues, a senior lender may prefer federal court even when the cost of an audit under state law is lower than the lender's own costs in federal court. An audit under state

19. This occurs frequently in Chapter 11 cases, as Baird and Morrison (2005, p. 2358) document.

law may be less effective than one in federal court. Outside federal court, a senior lender may have little or no authority to force the owner to disclose information about the business's prior transactions or payments. The lender may also lack authority to bring suit against owners for certain kinds of self-dealing. To be sure, a lender could obtain this authority through the terms of the loan agreement. The lender could, for example, demand personal guarantees from owner-managers. Surprisingly, however, guarantees are not demanded in a large number of small business loans. According to Avery, Bostic, and Samolyk (1998), only about 60 percent of small business corporations obtain loans with guarantees from insiders.[20] When a lender has not obtained a guarantee from insiders, an audit under state law may be less effective than one in federal court.[21] An Appendix illustrates these points in the context of a simple model.

4. EMPIRICAL IMPLICATIONS

The theory outlined in the previous section has two empirical implications: the probability of a bankruptcy filing will rise among distressed businesses when (1) the business has multiple senior lenders and (2) information asymmetries prevent senior lenders from gauging the value of business assets. In Section 5, I propose various proxies for businesses with these characteristics. Businesses with multiple senior lenders, for example, may have more than one bank lender, have incurred tax debts (which may give rise to liens), or face suits filed or judgments obtained by unsecured creditors. Once an unsecured creditor reduces its claim to a judgment, it typically obtains a lien claim against the debtor's assets. Similarly, a proxy for asymmetric-information problems is whether the

20. Using data on businesses in bankruptcy, Baird and Morrison (2005, p. 2362) observe a similar rate of (nontax) personal guarantees.

21. The lender may be able to conduct more rigorous audits in some states than in others. For example, Iowa, New York, and Texas have adopted fairly comprehensive regulations governing the ABC process. (For a detailed comparison of statutory and nonstatutory regimes across the United States, see Weintraub, Levin, and Sosnoff [1953, pp. 14–25].) These rules increase the information available from an audit and enhance the power of senior lenders to recover assets from insiders and third parties. The ABC process is far less regulated in California, Illinois, Nevada, and Virginia. There is generally neither court involvement nor public notice. No documents are filed with a court; no announcements are posted in newspapers. Even credit-reporting bureaus, such as Dun & Bradstreet (D&B), typically do not know whether a business used a state procedure. All they know is that the business faded away.

Table 2. Hypotheses Regarding the Attractiveness of Federal Bankruptcy Law Relative to State Law Alternatives

Hypothesis	Predicted Effect
Number of creditors:[a]	
Business has secured debt	+
Business has multiple senior lenders	+
Information asymmetries:[a]	
Relationship with bank has deteriorated	+
Shocks:[a]	
Business faces pending suits and judgments	+
Business recently changed	+
Priorities:[a]	
Business has tax debt	−
Business rents real estate	+
Owner-manager is member of a minority group or female	+

[a] The hypothesis will matter more for corporations than for noncorporations.

business has defaulted on senior debt or been habitually late in payments. This kind of behavior damages the business's relationship with the senior lender, who may become more skeptical about the owner-manager's reports.[22]

Table 2 summarizes these and several other hypotheses that can be drawn from the discussion in Section 3. First, the greater the number of creditors and the more severe the information asymmetries, the more likely a firm will invoke the federal code. Second, if a firm's capital structure is relatively complex or if it has suffered a financial shock, resulting in a rush of creditors bringing collection efforts, it may be unable to obtain quick consent from key creditors (see also Mann 2004, p. 1409). It may feel compelled to file a federal bankruptcy petition in

22. Information problems could be mitigated by laws that promote the transparency of state procedures, such as regulations that police insider self-dealing. The owner of a distressed business has strong incentives to favor herself because a large fraction of small business debt—about 25 percent among businesses with fewer than 20 employees—is typically owed to insiders or other individuals who are likely related to insiders (Berger and Udell 2002, pp. F35–F36). Thus, fraudulent-conveyance law may be particularly valuable to senior lenders, as it allows creditors to sue insiders who received payments when the business was insolvent. This suggests that state procedures may be more popular in states with strong fraudulent-conveyance laws. These laws are largely the same across the 50 states, with one important exception: only 38 states have adopted section 5(b) of the Uniform Fraudulent Transfer Act, which gives creditors power to sue any insider who receives payment on account of antecedent debt while the business is insolvent. If section 5(b) is an important device for senior creditors, state procedures will be more commonly used in states that have adopted this provision of the act than in those that have not.

order to protect its assets via the automatic stay.[23] A rush of creditors is likely, for example, when a business has suffered a fire or burglary or when it has experienced an unexpected financial shortfall following unsuccessful expansion or other change of business.

Third, because creditor priorities differ under state and federal law, a distressed business may favor the legal procedure that minimizes the owner's personal liability or limits the claims of particular creditors. As explained in Section 3.1, the IRS receives higher priority, relative to other unsecured or unperfected creditors, in state procedures than in federal bankruptcy court. If the owner of a corporation has personally guaranteed federal tax debts, as Baird and Morrison (2005, p. 2356) show is often the case, she may prefer state procedures because they ensure a higher payout to the IRS and therefore reduce her personal liability. Conversely, as Berman (1993, p. 361) notes, a business may be less likely to favor state law when the business leases real estate or other assets. In federal bankruptcy court, the debtor can enforce lease contracts even if it has committed a material breach that would, under state law, entitle the lessor to terminate the contract (11 U.S.C. sec. 365[b], [f]). In addition, in bankruptcy a debtor can breach a lease contract and cap the damages otherwise payable to the landlord under state law (11 U.S.C. sec. 502[b][6]).

Fourth, an owner's gains from state procedures will be larger when the business is organized as a corporation than when it has adopted a legal form without limited liability. If a proprietorship uses a state procedure, the owner remains personally liable even after the procedure ends. She can avoid this liability only by filing a bankruptcy petition. Even if senior lenders would agree not to bring suit against the owner personally, it would be prohibitively costly to obtain the same agreement from all unsecured creditors. Thus, the primary implications of the model

23. When a debtor files a federal bankruptcy petition, an injunction issues, enjoining all creditor collection efforts. The injunction applies equally to creditors who have obtained liens but not levied upon property, those who have suits pending, and those preparing to bring suit or assert self-help remedies. The automatic stay gives the debtor time to conduct an orderly liquidation or negotiate a plan of reorganization. State bankruptcy procedures offer significantly less protection to a debtor harassed by creditors. A bulk sale does nothing to stop a creditor from bringing suit against the debtor and perhaps even the buyer. When a business conducts an ABC, the assets are protected from most collection efforts, but creditors with liens may enforce those liens. In addition, creditors are free to bring suit against the debtor personally. Of course, if the debtor is a corporation, the assignment typically involves dissolution of the business, making moot any suits against the debtor itself.

in Section 3—multiple creditors and asymmetric information—should be observable among corporations but perhaps not among other business forms.

Finally, the demographic characteristics of the business or its owner may affect the probability of a bankruptcy filing. Blanchflower, Levine, and Zimmerman (2003), for example, find evidence that minority-owned small businesses face discrimination in credit markets. If lenders are unwilling to refinance distressed minority-owned firms, these firms may find Chapter 11 attractive because it offers a court-supervised opportunity to reorient business operations and bargain with prepetition creditors. To be sure, credit market discrimination may reduce opportunities for minority-owned firms to grow in size. And if minority-owned businesses are relatively small, they may be less able to afford the federal bankruptcy process. Conditional on size, however, the existence of credit market discrimination could increase the probability that a minority-owned distressed business will file a federal bankruptcy petition.[24] The same dynamics might be present in women-owned small businesses, but empirical studies find no evidence of capital market discrimination (see, for example, Kalleberg and Leicht 1991).

5. EMPIRICAL ANALYSIS

Ideal data would permit a comparison of two groups of distressed businesses: (1) those that filed federal bankruptcy petitions prior to shutting down or restructuring (bankruptcy exits) and (2) those that used state law procedures, such as ABC, to accomplish the same goals (state exits). With such data in hand, the following model could be used to evaluate factors that make a federal bankruptcy filing more or less likely:

$$E[\text{BankruptcyExit}_i] = F(\text{Hypotheses}_i, \text{Controls}_i). \quad (1)$$

Here $F(\ldots)$ is the cumulative density function for a particular distribution, usually normal (for a probit) or logistic (logit). BankruptcyExit_i is a

24. Dawsey and Ausubel (2002), however, find the opposite pattern in their study of distressed consumers, who can discharge debt by filing a federal bankruptcy filing or by forcing creditors to pursue collection under state law. Because many creditors will charge off a debt instead of pursuing collection, Dawsey and Ausubel argue that distressed consumers face a choice between formal bankruptcy (a federal filing) and informal bankruptcy (placing the burden on creditors to assert state law remedies). The authors find that members of minority groups are more likely than other borrowers to choose informal bankruptcy. The authors do not, however, offer a theory that might explain this pattern.

dummy variable equal to one if firm i is a member of the bankruptcy exit group and zero otherwise. Hypotheses$_i$ is a vector of proxies for the hypotheses in Table 2, and Controls$_i$ is a vector of variables that accounts for other possible determinants of a firm's decision to file for federal bankruptcy.

Model 2 requires data on two groups, bankruptcy exits and state exits. Ideal data do not exist, but we get close to the ideal using records assembled by Dun & Bradstreet (D&B), a credit-reporting bureau.

5.1. Data

Dun & Bradstreet gathers financial and operational information about the majority of businesses in the United States. The U.S. Small Business Administration (SBA) (2006b) estimates that about 25 million firms were active in the U.S. economy during 2004. Dun & Bradstreet's records for roughly the same period included about 18 million firms, 72 percent of the SBA total.[25] Missing from D&B's database are businesses with no debt. Dun & Bradstreet's mission is to offer reliable information about the creditworthiness of potential borrowers. A business usually does not enter D&B's database until a bank or trade creditor seeks (or reports) information about the business. This selection bias seems unimportant for the analysis here, which evaluates the choice between state and federal law among distressed, indebted businesses. A business without debt generally will not consider a bankruptcy filing.

Dun & Bradstreet's records include the credit history, annual sales, employment, location, and other characteristics of businesses.[26] Dun & Bradstreet also tracks the financial condition of every business using a proprietary index, the Financial Stress Score (FSS), which ranges from 1 to 5. Scores above 3 are indicative of distress; an FSS equal to 5 represents severe distress. The index is strongly correlated with the likelihood of suspending operations. Among firms with an FSS equal to 1, the probability of closing within 1 year is .5 percent. Among firms with an FSS equal to 4 or 5, the probability is 8 percent and 36 percent, respectively.

Dun & Bradstreet records depart from the ideal in several respects. They indicate whether a business shut down and whether it filed for bankruptcy. But if a business shut down without filing a bankruptcy

25. This information was supplied by D&B in response to the author's query.

26. The discussion in this and the following paragraphs is based on information supplied by D&B in response to the author's queries.

petition, the records do not indicate whether the business used a particular state procedure to liquidate or reorganize, merged with another firm, or shut down because the owner decided to move out of state or on to new projects. Thus, the population of business shutdowns includes distressed businesses that shut down or reorganized using state law (state exits) as well as healthy businesses that shut down because there were better uses for the physical assets or the owner's human capital (healthy exits). For this study, only state exits are relevant. I isolate this group, as explained below, by focusing on businesses with high FSSs. In general, I assume that a shutdown is a state exit if the business (*a*) exited without filing a bankruptcy petition during the preceding 3 years and (*b*) exited at a time when its FSS equaled 4 or 5 (in some tests, I focus on highly distressed firms with an FSS equal to 5).

Another shortcoming of the D&B data is the limited information about a business's capital structure. The data indicate whether, when, how often, and on what terms a business has borrowed from a bank or purchased goods on credit. They also indicate whether the business is late in making payments. But the records do not tell us the total value of the business's assets or liabilities. Thus, we do not know how leverage varies across businesses in the database. We must infer this from various proxies, such as the FSS, the size of the firm (measured in terms of sales or employment), and whether the business took on secured debt.[27]

5.2. Sample Selection

Because D&B data are expensive, I limited my analysis to a sample of small, privately held businesses located in Cook County, Illinois. I define a small business as one with 500 or fewer employees. In 1998, D&B maintained records on nearly 160,000 privately held businesses in Cook County, about 99 percent of which had 500 or fewer employees.

As a preliminary step, I drew a sample of 2,000 businesses that were operating as of January 1, 1998. As Table 3 illustrates, the sample was

27. The D&B data are also noisy. Data on a firm's annual sales are available for some years but not others. When these data are available, the same sales volume may be reported for multiple years, which suggests that D&B reproduced data from past years when it was unable to contact a business in the current year. Along the same lines, important variables, such as the gender of the owner and whether the business rents or owns real estate, are missing for a large number of businesses. Some of these problems, such as missing or duplicate sales data, can be minimized by computing annual averages for each business. The averages will moderate the noisiness. Other problems, such as underreporting of gender and real estate ownership, can be ignored if I assume that reporting biases do not differ across the two groups that are the focus of this paper: bankruptcy exits and state exits.

Table 3. Dun & Bradstreet Sample 1: Businesses Active on January 1, 1998, Followed through 2004: Random Sample

	Sample (1)	Population (2)	Exits (% Sample) (3)	Bankruptcies (% Exits) (4)	Distressed Exits (% Sample) (5)	Distressed Bankruptcies (% Distressed Exits) (6)
High distress (FSS = 5):						
Corporations	332	702	159 (47.8)	25 (15.6)	126 (38.0)	20 (15.9)
Noncorporations	329	407	82 (24.9)	14 (16.9)	65 (19.8)	13 (20.0)
Moderate distress (FSS = 4):						
Corporations	329	1,820	98 (29.8)	14 (14.3)	71 (21.6)	11 (15.4)
Noncorporations	329	1,235	78 (23.7)	12 (15.4)	51 (15.5)	9 (17.6)
Not distressed (FSS < 4):						
Corporations	329	49,903	61 (18.5)	2 (3 .2)	5 (1 .5)	1 (20.0)
Noncorporations	333	25,178	54 (16.2)	1 (1 .9)	3 (.1)	0 (.0)

stratified. A third of the sample consisted of businesses in high distress (FSS equal to 5), another third of businesses in moderate distress (FSS equal to 4), and a final third of businesses in low or no distress (FSS below 4). Within each third, the sample was split evenly between corporations and noncorporations (partnerships and proprietorships). For each business, D&B provided annual financial and operational information for every year from 1998 through 2004 or until the business terminated operations, whichever occurred earlier.

This exploratory analysis confirmed the rarity of federal bankruptcy filings. Table 3 shows that among corporations in high distress (FSS equal to 5) on January 1, 1998, nearly 50 percent ceased operations within 7 years. Among those that shut down, only 15.6 percent filed a federal bankruptcy petition. The bankruptcy rate is a bit higher (16.9 percent) among noncorporations. These percentages measure the bankruptcy rate among all exiting businesses, regardless of whether they were distressed at the time of exit. When the sample is limited to businesses that exited in distress, as the final columns of Table 3 do, the percentages rise slightly. It may seem odd that some bankruptcies are not distressed bankruptcies in Table 3. Among high-distress corporations, the number of bankruptcies is 25, but the number of distressed bankruptcies is 20. Because it is unlikely that a healthy business would file for bankruptcy, the disparity most likely reflects measurement error. It is not uncommon for D&B to know that a business filed for bankruptcy but have little additional information about it. Such a business may have a low FSS only because D&B lacks sufficient information to assign an accurate score. The analysis below will generally focus on bankruptcy filings by businesses that, on the basis of D&B records, were distressed at the time of filing.[28]

Given the rarity of bankruptcy exits, a simple random sample will not yield enough bankruptcy exits and state exits to implement model 2. An attractive alternative is choice-based sampling (see Waldman 2000; Scott and Wild 1986). Instead of sampling the population of all small businesses, I drew samples from two subpopulations: businesses that suffered distress between 1998 and 2000 and either (1) filed for bankruptcy (bankruptcy exits) or (2) shut down without filing (state exits) prior to 2005. This sampling methodology has the advantage of cost-

28. This restriction has little effect on the analysis, however. In general, the patterns reported below do not change when the analysis is broadened to include all bankruptcies, regardless of the level of distress.

Table 4. Dun & Bradstreet Sample 1: Businesses Active on January 1, 1998, Followed through 2004: Choice-Based Sample

	State Exits		Bankruptcy Exits	
	Sample	Population	Sample	Population
High distress (FSS = 5):				
Corporations	250	272	77	77
Noncorporations	177	177	40	40
Moderate distress (FSS = 4):				
Corporations	250	533	157	157
Noncorporations	250	417	90	90

effectiveness. The downside is that it distorts the representativeness of the overall sample. For any given business in the choice-based sample, the probability of selection differs from the probability of selecting the same businesses at random from the general population. This complication, however, has a simple fix: the data can be weighted by the probability of selection.

Applying this methodology, I drew 927 state exits and 364 bankruptcy exits. As Table 4 shows, the sample of state exits represents about 66 percent of all such exits in the population; the sample of bankruptcy exits accounts for 100 percent of these exits. Within each group, the samples are divided between businesses in high distress (FSS equal to 5) and moderate distress (FSS equal to 4) and between corporations and noncorporations. Each subgroup is a random sample from the relevant subpopulation. For each business, the data include annual financial and operational data from 1994 through 2004.

Together, the samples in Tables 3 and 4 represent the primary data for the tabular and multivariate analysis that follows. I compare state exits with bankruptcy exits among the subset of distressed businesses. This is a valid way to test theories regarding the choice between state law procedures and federal bankruptcy law if my measure of distress is accurate. It is probably safe to assume that all bankruptcy exits involve distressed businesses. Among state exits, however, it is possible that some of these exits involve businesses that appear distressed but are in fact solvent. I treat a business as distressed if its financial stress score (FSS) exceeds 3, but Table 3 shows that many distressed firms never shut down. Among corporations with an FSS equal to 5 in January 1998, for example, only 48 percent exited within the following 7 years; the percentage is 30 for corporations with an FSS equal to 4. Thus, there is a risk that in comparing state exits with bankruptcy exits, I am making

Table 5. D&B Sample 2: Businesses That Closed during 1998–2000

	State Exits		Bankruptcy Exits	
	Sample	Population	Sample	Population
Distressed (FSS = 4 or 5):				
Corporations	250	569	295	295
Noncorporations	250	459	256	256
Not distressed (FSS < 4):				
Corporations	427	1,041		
Noncorporations	423	565		

two comparisons simultaneously: (1) state exits versus bankruptcy exits, among distressed businesses, and (2) state exits by healthy businesses versus bankruptcy exits by distressed businesses. I am interested in comparison 1, not 2.

I evaluate this potential problem below by running the analysis separately for two samples: one consisting of both moderately and highly distressed businesses (FSS equal to 4 or 5) and one limited to highly distressed businesses with an FSS equal to 5. State exits involving healthy businesses will be more common in the former group than in the latter. If some patterns are important in the first sample but not in the second, they probably tell us little about the choice between state and federal law among distressed businesses. They instead tell us something about the difference between healthy and distressed businesses.

Another way to evaluate this problem is to identify patterns that distinguish healthy and distressed businesses and compare these with patterns that distinguish state exits from bankruptcy exits. To make this comparison, I gathered data on apparently healthy (FSS below 4) and distressed (FSS equal to 4 or 5) businesses that shut down during the period 1998–2000. As Table 5 illustrates, the sample includes about 1,000 exits by distressed businesses and over 850 by healthy businesses.

5.3. Variables

The central hypotheses of this paper are that the probability of a federal bankruptcy filing rises as (1) the number of senior lenders increases and (2) information asymmetries become more severe. The D&B data contain various proxies for the number of senior lenders, as summarized in Table 6. One is the number of times secured creditors have filed financing statements that record security interests in assets owned by the debt. A secured creditor will generally file a Uniform Commerical Code (UCC) Financing Statement (Form UCC-1) with the Illinois Secretary of State.

Table 6. Variable Definitions

Variable	Definition
Number of senior lenders:	
Any UCC filings	Equals one if business had any UCC filings
One UCC filing	Equals one if business had only one UCC filing
More than one UCC filing	Equals one if business had more than one UCC filing
Any liens imposed	Equals one if any liens are reported in public records
One bank	Equals one if business had one bank lender
More than one bank	Equals one if business had more than one bank lender
Information asymmetries:	
Poor banking history	Equals one if bank reported slow or delinquent payments
Poor banking history, one bank	(One bank) × (Poor banking history)
Poor banking history, more than one bank	(More than one bank) × (Poor banking history)
Age	Firm age (years)
Management tenure	Management tenure (years)
Priorities: rents	Equals one if business rents real estate
Shocks:	
Any suits or judgments	Equals one if any suits or judgments were pending
Changed owner, location, or name	Equals one if business moved or changed owners or changed name

Other controls:	
Poor trade credit history	Equals one if trade creditors reported slow or delinquent payments
Manager with prior business failures	Equals one if manager owned previous businesses that filed for bankruptcy or failed without fully paying creditors
Business with prior failures	Equals one if business underwent prior bankruptcy or receivership
Years in distress	Number of years business was in distress
Fire, burglary, indictment	Equals one if business suffered fire, burglary, or indictment
Annual sales (normalized)	Average annual sales divided by average industry sales ($)
Employment	Average number of employees
Run from owner's home	Equals one if business is run out of owner's home
Owns real estate	Equals one if business owns real estate
Woman owned	Equals one if owner is female
Minority owned	Equals one if owner is member of a minority group
Multiple business lines	Equals one if firm runs multiple lines of business
Wholesale	Equals one if primary business line is wholesale

Note. UCC = Uniform Commercial Code.

These statements are publicly available and summarized in the D&B data. Additional proxies are the number of banks that submitted information to D&B about loans to a particular business and whether the public records report any liens filed against the business.

A useful proxy for information asymmetries is whether a lending bank reported that its relationship with the debtor business has deteriorated because of defaults, habitually late payment, or other factors. Given the importance of relationship banking in small business lending, it seems reasonable to infer that a bank will put less trust in a debtor's disclosures if the bank's relationship with the debtor has deteriorated. Another proxy is the age of the business. Because most businesses maintain a relationship with a single bank, the age of the business may be a good proxy for the duration of its relationship with the bank. The longer the relationship, the less likely there is an important information asymmetry between the bank and the debtor.

Section 4 identifies several other factors that may affect the choice between state and federal procedures. Federal law may be attractive to businesses that operate in rented real estate. Relative to state law, the code gives the debtor greater bargaining power with respect to landlords. Federal law may also be attractive to businesses that have suffered financial shocks or face a rush of creditors bringing suit. These businesses may not have sufficient time to invoke state procedures; they may need the benefit of the code's automatic stay immediately. The D&B data indicate whether a business faces suits and judgments. They also indicate whether it has undergone a recent change in ownership, name, or location. These kinds of changes usually occur during a period of instability, suggesting the occurrence of a shock.

Other variables, summarized in Table 6, could also affect the likelihood that a distressed business enters federal bankruptcy court. These include the debtor's size (as measured by sales and employment), its relationship with trade creditors, whether the business filed a bankruptcy petition in the past, and the race and gender of the owner. Another potentially important variable for a proprietorship is whether the owner-manager has made tangible, personal investments in the business. The business, for example, might be operated from the owner's home.

5.4. Summary Statistics

Tables 7 and 8 provide summary statistics for all sample businesses and for corporations in particular. Although the D&B data include annual observations for every business, I was unable to exploit this time vari-

ation. The data are noisy: in many cases, for example, variables such as sales or employment are the same for several years. Because of such problems, I treated the data as cross-sectional. For each business, I computed averages for each of the variables in the database. In most cases, the average is based on the 3 years preceding the date of shutdown or bankruptcy filing. Thus, Tables 7 and 8 compare state exits to bankruptcy exits during the 3 years preceding exit.

Overall, the sample businesses are quite small. The average business has 15 employees and annual sales of $1.45 million. It has been in operation at least 10 years (based on management tenure) and perhaps as many as 14 years (based on D&B's estimate of firm age, which appears to be biased upward).[29] Over half of the businesses operate in the services and retail sectors; another 26 percent operate in construction and wholesale. The corporations in the sample are slightly larger (around 19 employees and annual sales of about $2 million) and have greater representation in the manufacturing sector.

Tables 7 and 8 present puzzling data on the gender and race of the owner-manager. Women-owned businesses account for less than 7 percent of businesses; minority-owned businesses account for at most 9 percent. In data collected by the Federal Reserve (see Bitler, Robb, and Wolken 2001), these percentages are much larger: 24 percent for women-owned businesses and 15 percent for minority-owned businesses. The differences could reflect flawed data collection by D&B.

Comparing state exits and bankruptcy exits, the tables show that businesses with bankruptcy exits tend to have slightly fewer employees but slightly greater annual sales than businesses with state exits. They are much more likely to involve businesses that have filed bankruptcy petitions before and to be concentrated in the construction sector.

Bankruptcy exits also differ from state exits along many of the margins suggested by the simple model of Section 3. First, state exits are significantly less likely to involve secured debt. A business without secured debt is more likely to use state procedures because it faces none of the problems—coordination problems among senior lenders and asymmetric information—that can prevent a business with secured debt from using state law. Second, bankruptcy exits are significantly more likely to involve businesses with multiple UCC filings and multiple banks, consistent with the hypothesis that the probability of a federal filing rises

29. In many cases, the age reported in D&B records is greater than the age that the business reported to the Illinois Secretary of State.

Table 7. Summary Statistics: Means for All Businesses

	Full Sample		State Exits		Bankruptcy Exits	
Bankruptcy exits	.155	(.005)				
Number of senior lenders:						
Any UCC filings	.591	(39.478)	.570	(33.036)	.694**	(30.590)
One UCC filing	.136	(12.567)	.134	(11.188)	.143	(5.761)
More than one UCC filing	.455	(30.024)	.436	(25.220)	.551**	(18.917)
One bank	.199	(14.866)	.198	(13.035)	.202	(7.324)
More than one bank	.166	(13.729)	.153	(11.290)	.231**	(9.141)
Any liens	.457	(31.747)	.440	(26.998)	.541**	(19.229)
Information asymmetries:						
Poor banking history	.519	(45.903)	.490	(38.033)	.666**	(31.296)
Poor banking history, one bank	.088	(11.244)	.081	(9.271)	.126*	(7.005)
Poor banking history, more than one bank	.092	(11.825)	.075	(8.896)	.176**	(8.914)
Age	14.233	(27.297)	14.085	(24.061)	14.891	(13.464)
Management tenure	10.028	(33.596)	9.852	(28.732)	10.810	(20.026)
Priorities: rents	.434	(28.419)	.418	(24.011)	.516**	(18.320)
Shocks:						
Any suits or judgments	.678	(48.650)	.661	(41.312)	.763**	(31.440)
Changed owner, location, or name	.199	(14.966)	.200	(13.331)	.190	(6.937)
Other controls:						
Poor trade credit history	.427	(27.633)	.406	(23.333)	.530**	(15.960)
Run from owner's home	.067	(7.555)	.064	(6.337)	.085	(4.643)
Business with prior failures	.037	(7.049)	.026	(4.874)	.093**	(5.476)
Years in distress	2.2	(.05)	2.2	(.06)	2.1	(.08)
Annual sales	1,451,260	(177,509.6)	1,432,157	(209,595.5)	1,547,303*	(194,706.5)

Employment	14.6	(1.5)	14.7	(1.81)	14.3[+]	(1.44)
Woman owned	.044	(5.759)	.039	(4.619)	.065	(4.208)
Minority owned	.083	(8.673)	.084	(7.597)	.081	(4.955)
Industry:						
Construction	.131	(12.755)	.119	(10.488)	.194**	(7.739)
Finance	.034	(5.126)	.039	(4.943)	.009**	(1.759)
Manufacturing	.099	(10.430)	.096	(9.182)	.116	(4.933)
Retail	.282	(18.959)	.281	(16.615)	.282	(10.417)
Services	.254	(17.975)	.261	(16.303)	.216	(7.644)
Transportation	.074	(9.263)	.076	(8.294)	.065	(4.469)
Wholesale	.126	(10.998)	.127	(9.669)	.117	(6.377)
N	1,228		930		298	

Note. Standard errors are in parentheses. UCC = Uniform Commerical Code.

[+] Bankruptcy exit coefficient is different from the corresponding state exit coefficient at the 10% level, applying the Wald test.

* Different at the 5% level.

** Different at the 1% level.

Table 8. Summary Statistics: Means for Corporations

	Full Sample		State Exits		Bankruptcy Exits	
Bankruptcy exits	.168	(.007)				
Number of senior lenders:						
Any UCC filings	.717	(38.289)	.693	(31.424)	.828**	(33.486)
One UCC filing	.127	(9.424)	.127	(8.445)	.130	(4.106)
More than one UCC filing	.590	(28.993)	.566	(24.056)	.699**	(18.506)
One bank	.242	(13.151)	.243	(11.459)	.240	(6.499)
More than one bank	.238	(13.344)	.223	(10.869)	.309*	(9.684)
Any liens	.573	(30.210)	.564	(25.632)	.612	(19.461)
Information asymmetries:						
Poor banking history	.538	(39.935)	.501	(32.109)	.713**	(30.706)
Poor banking history, one bank	.111	(10.205)	.102	(8.393)	.150^{+}	(6.436)
Poor banking history, more than one bank	.134	(11.628)	.109	(8.624)	.251**	(8.914)
Age	15.607	(24.038)	15.435	(21.191)	16.386	(11.721)
Control age	10.632	(29.775)	10.470	(25.264)	11.343	(18.529)
Priorities: rents	.561	(27.248)	.543	(22.725)	.645*	(19.822)
Shocks:						
Any suits or judgments	.790	(46.850)	.777	(39.153)	.850*	(36.569)
Changed owner, location, or name	.227	(12.915)	.230	(11.426)	.214	(5.944)
Other controls:						
Poor trade credit history	.537	(25.810)	.519	(21.575)	.627*	(15.491)
Run from owner's home	.058	(5.205)	.059	(4.506)	.053	(3.546)
Business with prior failures	.045	(6.620)	.029	(4.415)	.120**	(5.177)
Years in distress	2.3	(.07)	2.3	(.08)	2.2	(.09)
Annual sales	2,003,495	(268,647.6)	1,984,136	(320,621.2)	2,094,592	(270,774.4)

Employment	19.3	(2.30)	19.4	(2.75)	18.6	(2.04)
Woman owned	.024	(3.368)	.022	(2.744)	.031	(2.354)
Minority owned	.089	(6.991)	.087	(5.903)	.093	(4.407)
Industry:						
Construction	.140	(10.622)	.128	(8.583)	.195*	(6.989)
Finance	.037	(3.970)	.044	(3.905)	.004**	(1.000)
Manufacturing	.126	(9.463)	.120	(8.218)	.152	(4.659)
Retail	.240	(12.959)	.245	(11.387)	.217	(7.508)
Services	.215	(12.337)	.218	(10.922)	.203	(5.675)
Transportation	.088	(7.955)	.091	(7.076)	.075	(3.979)
Wholesale	.154	(9.804)	.154	(8.425)	.154	(6.218)
N	774		564		209	

Note. Standard errors are in parentheses. UCC = Uniform Commerical Code.

[+] Bankruptcy exit coefficient is different from the corresponding state exit coefficient at the 10% level.

* Different at the 5% level.

** Different at the 1% level.

with the number of creditors. Finally, the debtor's relationship with its senior lenders is significantly worse among businesses that invoke federal law. This too is consistent with the hypothesis that federal bankruptcy filings are more likely when asymmetric information problems are significant.

Other hypotheses find support in Tables 7 and 8 as well. Bankruptcy exits are more likely to involve businesses that operate from rented facilities, consistent with Mann's (2004) hypothesis. Also, bankruptcy exits are more likely to involve businesses facing suits and judgments, which suggests that a business facing time constraints is less able to use state procedures.

5.5. Results

Table 9 reports estimates of model 2, assuming that $F(\ldots)$ follows a logistic distribution. The data are limited to distressed businesses with FSS equal to 4 or 5. The dependent variable, BankruptcyExit, equals one if a business filed a bankruptcy petition within 3 years of shutting down and zero otherwise. Standard errors are robust, all continuous variables are logged, and the data are weighted by (the inverse of) their sampling probabilities. Thus, a ratio above (below) one implies that the covariate is positively (negatively) correlated with the probability of a bankruptcy filing.

Column 1 presents a simple regression with two proxies each for the number of senior lenders and for information asymmetries. The results are largely consistent with the tabular comparisons in Tables 7 and 8. The probability of filing for bankruptcy rises significantly among businesses with secured debt, liens, and sour relationships with senior lenders—all consistent with the central hypotheses of this paper that federal cases are more likely when a business has secured debt, multiple senior lenders, and private information about the value of its assets. The age of the business, as proxied by management tenure, is negatively correlated with the likelihood of a bankruptcy filing, but the estimates are only marginally significant. This too is consistent with the hypothesis that lenders have greater information about old firms, which probably have longstanding relationships with their lenders.

These effects are economically significant. Column 1, for example, reports that the average marginal effect of having any UCC filings is .114, which means that the probability of a federal bankruptcy filing rises .114 when a distressed corporation has incurred secured debt. Given that the unconditional probability of a bankruptcy filing is .168 (see

Table 8), the presence of secured debt raises the probability of a bankruptcy filing to about .278, a 65 percent increase. Poor banking history has a comparable effect.

Other hypotheses appear to play a less important role in determining the choice between state and federal law. A business that rents its facility is more likely to use federal law, as Mann (2004) predicted, but the effect is not significant. The lack of significance, however, is partly the product of strong multicollinearity between this variable and two others—having any suits and judgments (correlation equal to .23) and having a poor trade credit history (correlation equal to .20). When only one of these variables is included in the analysis, that variable becomes marginally significant, as column 2 illustrates.

The estimates in columns 1 and 2 are drawn from a sample of distressed corporations. Column 3 reestimates the model on the subsample of distressed partnerships and proprietorships. The importance of secured debt largely disappears, but the debtor's relationship with its bank remains an important determinant of federal filings. Other hypotheses, such as whether the business rents its facility, seem not to matter. The probability of a federal filing by a proprietorship or partnership rises substantially if the business operates out of the owner's home (although the estimate is only marginally significant).

Columns 1–3 include any business with an FSS equal to 4 or 5. If state exits include a significant number of healthy firms—because the FSS variable is not perfectly correlated with distress—the reported estimates are biased. To address this possibility, column 4 reestimates model 2 using the subsample of corporations with the highest FSS (equal to 5). The overall results do not change. The statistical significance of some coefficients falls, but this is unsurprising because the sample size has fallen by about 50 percent. Overall, the estimates in column 4 suggest that the patterns in Table 9 are not biased by the presence of healthy exits among the businesses that chose state over federal law.

Table 10 augments the basic empirical model to include a richer set of proxies for the number of creditors and for information asymmetries. As in the basic model, the presence of multiple secured lenders markedly increases the probability of a federal filing by distressed corporations (see columns 1 and 3). The probability of bankruptcy also rises when the business has only one secured lender. I treat this as evidence that even with a single senior lender, bargaining failure may occur because of information asymmetries or other problems.

Table 10 offers additional evidence that information asymmetries are

Table 9. Odds of Federal Bankruptcy Filing

	Distressed Corporations (1)			Distressed Corporations, Ignoring Highly Collinear Variables (2)			Distressed Noncorporations (3)			Highly Distressed Corporations (4)		
Number of senior lenders:												
Any UCC filings	2.375**	(.001)	[.114]**	2.357**	(.001)	[.113]**	1.648	(.173)	[.071]	3.638**	(.002)	[.152]**
Any liens	1.474^{+}	(.070)	[.056]$^{+}$	1.500^{+}	(.059)	[.059]$^{+}$	1.933	(.134)	[.098]	2.395**	(.004)	[.117]**
Information asymmetries:												
Poor banking history	2.557**	(.000)	[.129]**	2.596**	(.000)	[.131]**	2.688*	(.011)	[.140]*	1.989*	(.043)	[.092]*
Management tenure	.775	(.114)	[−.038]	.804	(.171)	[−.032]	1.144	(.585)	[.019]	1.031	(.898)	[.004]
Priorities: rents	1.332	(.160)	[.042]	1.392	(.103)	[.048]$^{+}$	1.008	(.984)	[.001]	1.046	(.878)	[.006]
Shocks:												
Any suits/judgments	1.492	(.149)	[.055]				1.495	(.323)	[.055]	1.092	(.880)	[.012]
Changed owner, location, name	.742	(.222)	[−.042]	.759	(.259)	[−.039]	.884	(.785)	[−.017]	.403**	(.003)	[−.117]**
Other controls:												
Poor trade credit history	1.201	(.392)	[.027]				1.074	(.873)	[.010]	1.825^{+}	(.098)	[.078]$^{+}$
Exit year	1.197**	(.007)	[.026]**	1.189*	(.010)	[.025]*	.903	(.494)	[−.014]	1.371**	(.008)	[.044]**
Business with prior failures	4.220**	(.000)	[.271]**	4.021**	(.000)	[.262]**	.454	(.556)	[−.090]	4.604**	(.001)	[.267]**
Years in distress	.687*	(.015)	[−.055]*	.729*	(.042)	[−.046]*	.793	(.200)	[−.033]	.428**	(.001)	[−.117]**
Annual sales	1.000	(.998)	[−.000]	1.027	(.854)	[.004]	1.017	(.954)	[.002]	.995	(.981)	[−.001]

Employment	.916	(.588)	[−.013]	.905	(.541)	[−.015]	.739	(.387)	[−.042]	1.007	(.975)	[.001]
Run from owner's home							2.264	(.102)	[.133]			
Woman owned	2.231	(.110)	[.118]	2.127	(.123)	[.111]	2.114+	(.065)	[.105]+	.621	(.778)	[−.066]
Minority owned	1.084	(.805)	[.012]	1.074	(.827)	[.011]	.616	(.372)	[−.062]	1.188	(.697)	[.025]
Industry:												
Finance	.118*	(.042)	[−.177]**	.112*	(.038)	[−.178]**	.455	(.370)	[−.091]			
Manufacturing	.621	(.179)	[−.064]	.617	(.174)	[−.065]	.464	(.342)	[−.090]	.398+	(.072)	[−.111]*
Retail	.567+	(.063)	[−.077]*	.533*	(.038)	[−.085]*	1.188	(.742)	[.024]	.473	(.122)	[−.094]+
Services	.536+	(.062)	[−.083]*	.547+	(.070)	[−.081]*	.483	(.179)	[−.095]	.535	(.188)	[−.079]
Transportation	.389*	(.016)	[−.114]**	.374*	(.013)	[−.117]**	.933	(.931)	[−.009]	.285*	(.018)	[−.141]**
Wholesale	.515*	(.041)	[−.087]*	.522*	(.044)	[−.085]*	.358	(.242)	[−.112]	.476+	(.092)	[−.092]+
N	714			714			283			377		

Note. Coefficients are odds ratios from a logit. Robust *p*-values are in parentheses, and average marginal effects are in square brackets.

+ Significant at the 10% level.

* Significant at the 5% level.

** Significant at the 1% level.

Table 10. Odds of Exit

	Bankruptcy Exits versus State Exits			
	Distressed Corporations (1)	Distressed Noncorporations (2)	Highly Distressed Corporations (3)	Distressed Exits versus Healthy Exits (4)
Number of senior lenders:				
One senior lender	2.395* (.022)	1.977 (.116)	3.210* (.023)	2.377* (.049)
More than one senior lender	2.294** (.002)	1.313 (.532)	3.513** (.005)	3.895** (.000)
Any liens	1.522^{+} (.058)	2.039^{+} (.079)	2.357** (.004)	9.876** (.000)
Information asymmetries:				
Poor banking history, one report	1.890^{+} (.095)	1.926 (.162)	.968 (.972)	++
Poor banking history, more than one report	2.797** (.000)	3.549** (.003)	2.212* (.018)	++
Management tenure	.776 (.108)	1.117 (.656)	1.057 (.822)	.217** (.000)
Priorities: rents	1.331 (.159)	.958 (.923)	1.012 (.967)	2.148* (.023)
Shocks:				
Any suits or judgments	1.500 (.147)	1.422 (.371)	1.354 (.607)	4.081** (.002)
Changed owner, location, or name	.734 (.210)	.901 (.816)	.392** (.003)	.584 (.195)

Other controls:								
Exit year	1.187**	(.010)	.896	(.459)	1.343*	(.012)	++	
Business with prior failures	4.075**	(.000)	.469	(.590)	4.088**	(.002)	33.408**	(.000)
Years in distress	.693*	(.013)	.812	(.245)	.442**	(.002)		
Annual sales	.995	(.971)	.995	(.986)	.978	(.909)	.819	(.320)
Employment	.920	(.602)	.774	(.470)	1.047	(.831)	1.209	(.419)
Run from owner's home			2.262	(.108)				
Woman owned	2.216	(.124)	2.103+	(.082)	.513	(.668)	8.021	(.120)
Minority owned	1.057	(.868)	.607	(.367)	1.170	(.723)	.945	(.918)
N	714		283		377		522	

Note. Coefficients are odds ratios from a logit. Robust *p*-values are in parentheses. Industry fixed effects are included in all regressions. Double pluses indicate that the variable was dropped from the analysis because it was perfectly positively correlated with the dependent variable.

+ Significant at the 10% level.

* Significant at the 5% level.

** Significant at the 1% level.

important. In columns 1 and 3, the probability of a federal filing is substantially larger when a small business corporation has harmed its relationship with multiple lenders. Interestingly, it is unclear whether the probability of bankruptcy rises when there has been only one report that the business has defaulted or otherwise harmed its relationship with its bank lender. The coefficient is marginally significant in column 1 but insignificant when the sample is limited to highly distressed corporations in column 3.

Finally, column 4 redefines the dependent variable to equal one when a distressed business exits and zero when a nondistressed business exits. This model, then, compares distressed exits to healthy exits. About 44 percent of exits are distressed exits. The estimates reported in column 4 are very large but qualitatively similar to those in the other columns of Table 10: relative to healthy exits, distressed exits are much more likely to involve firms with significant secured debt, liens, suits and judgments, poor relationships with creditors, and prior bankruptcy filings. Healthy exits, then, differ from distressed exits along largely the same margins that distressed exits differ from bankruptcy exits. This suggests that firms in bankruptcy tend to be more distressed than firms that use state procedures, and both types of firms are more distressed than healthy businesses that shut down. This conclusion is somewhat unsurprising: a major determinant of a distressed business's choice between state and federal law—its relationship with senior lenders—is undoubtedly a major factor used by D&B in assessing the business's distress level.[30]

6. DISCUSSION

The results in Section 5 are consistent with the hypothesis that, among small businesses, federal bankruptcy filings are the result of bargaining failure between the business and its senior lenders. A distressed business

30. As an exploratory exercise, an early draft of this paper used state-level data to test the correlation between features of state insolvency laws and the rate with which failing businesses file federal bankruptcy petitions. Filings are significantly more common in some states (such as Nevada) than in others (such as North Dakota) and could be due to variation in state laws. Preliminary analysis showed a robust negative correlation between corporate Chapter 11 filings (per 1,000 business deaths) and the presence of laws regulating preferential payments to insiders (Uniform Fraudulent Transfer Act, sec. 5[b]). These results are not reported here because the correlation is at best suggestive: it could be due to unobservable variables and may be biased by the endogeneity of states' decisions to adopt laws regulating preferential payments to insiders.

is significantly more likely to file for bankruptcy if it needs the consent of a bank, the IRS, or other senior creditor to pursue state procedures. And it is unlikely to obtain consent if the number of senior creditors is large or if the creditors suspect that the owner has private information about the value of business assets. The choice between state and federal law, these data suggest, is a choice made by a firm's senior creditors.

The control exercised by senior creditors can have two important effects on the resolution of distress in small businesses. First, it can reduce the ex post costs of financial distress. Relative to federal law, state procedures are generally faster, generate lower administrative costs, and impose fewer burdens on senior lenders (such as the federal rule denying interest payments to undersecured creditors). They also offer a simpler alternative to Chapter 11, which is frequently criticized as an overly cumbersome reorganization mechanism for small businesses. Senior creditors effectively sort businesses between cheaper, less transparent state procedures and more expensive federal procedures that offer a more rigorous audit of the business. When senior debt exceeds the value of the business assets, these creditors are effectively the owners of the assets and therefore have appropriate incentives to sort businesses in a way that maximizes the return. Business owners consent to this process because they will receive little or nothing in bankruptcy but could receive a meaningful payoff in a state proceeding. They can demand a payoff because they are always free to file a bankruptcy petition, which will impose costs on senior lenders.

This points to a second effect of senior-creditor control: senior creditors and business owners may collude to divert value from junior creditors. With senior-creditor assistance, a business may use state procedures that make it difficult for junior creditors to uncover prior fraud or to determine whether the value of business assets exceeds the secured claims. The business may be sold at an auction with few, if any, bidders other than the previous owner, whose bid may be financed by senior creditors and yield no payoff to anyone other than the seniors. Junior, unsecured creditors will rarely object to this process. Their claims are too small to warrant monitoring the proceeding.[31]

The potential for this dynamic—collusion among senior creditors and business owners—is a longstanding problem in state procedures. Indeed, Skeel (2001, pp. 64–65) notes that precisely the same dynamic char-

31. Several lawyers reported that if a junior creditor does object, the dispute will often be settled by means of a payment that convinces the creditor to withdraw the objection.

acterized equity receiverships around the turn of the twentieth century and led to the Supreme Court's decision announcing the absolute-priority rule (see also Baird and Rasmussen 1999). Ex ante, of course, this dynamic will induce junior creditors to restrict or raise the price of credit.

These observations suggest several possible directions for U.S. bankruptcy policy. They suggest, first, that current policy regarding small business bankruptcy is often self-defeating. Because federal bankruptcy law competes with state procedures, any reform to or interpretation of federal law will have two effects: it will alter payoffs to creditors and shareholders in bankruptcy (the intensive margin) as well as the bargaining between entrepreneurs and senior creditors over the choice between state and federal procedures (the extensive margin). Reforms that try to improve payoffs to junior creditors in bankruptcy, at the expense of shareholders, will tend to make state procedures more attractive to the debtor. The dynamic along the extensive margin (inducing businesses to choose state law) could undercut the intended effect along the intensive margin (improving payoffs to junior creditors).

The 2005 amendments to the Bankruptcy Code are a case in point (Bankruptcy Abuse Prevention and Consumer Protection Act, Pub. L. No. 109-8, 119 Stat. 23 [2005]). As Haines and Hendel (2005) explain, these reforms raised the costs of small business bankruptcy by imposing heavier reporting requirements,[32] time constraints,[33] and other burdens[34] on distressed small businesses. The goal of the reforms was, it seems, to offer greater protection to junior creditors. The effect may be just the opposite in many cases. By raising the cost of federal law, the reforms seem to have increased the attractiveness of state procedures, which typically offer less protection for junior creditors.

Federal preemption rules push in the opposite direction. Federal law generally preempts conflicting state law dealing with the same subject

32. These include requiring periodic reports on profitability and projected cash flow, comparisons of actual and projected receipts and disbursements, and a statement indicating whether the debtor is in compliance with bankruptcy and tax laws (11 U.S.C. sec. 308), obligating the debtor or trustee to submit a balance sheet and other financial reports within 7 days of filing a Chapter 11 petition (11 U.S.C. sec. 1116), and authorizing the U.S. Trustee to visit the business premise of the debtor and inspect records (28 U.S.C. sec. 586[a][7]).

33. A reorganization plan must be submitted within 300 days (11 U.S.C. sec. 1121[e][2]), and the plan must be confirmed within 45 days after submission (sec. 1129[e]).

34. For example, 11 U.S.C. sec. 362(n) eliminates the automatic stay in cases involving small businesses that exited a prior bankruptcy case, via dismissal or a confirmed reorganization plan, within 2 years of the current bankruptcy case.

matter. In deciding whether conflict exists, courts assess whether the law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress" (*Hines v. Davidowitz*, 312 U.S. 52, 67 [1941]). In making this assessment, the Ninth Circuit recently held that state law regulating California's ABC procedure is in conflict with the Federal Bankruptcy Code (*Sherwood Partners, Inc. v. Lycos, Inc.,* 394 F.3d 1198 [9th Cir. 2005]). California law, like the code, permits the assignee to bring suit against creditors, including insiders, who received preferential payment during the firm's descent into insolvency (Cal. Civ. Proc. Code. sec. 1800[b]). A preferential payment is one that allows the creditor to receive a greater payoff than other creditors with similar priority. Under California law, the assignee can sue any insider who received preferential payments within 1 year of the ABC; other creditors can be sued if they were paid within 90 days of the assignment. This law was, at the time of the case, identical to the Bankruptcy Code's rules regulating preferential payments (11 U.S.C. sec. 547).[35] The Ninth Circuit held that the state law is preempted because it conflicts with one of the code's basic goals—"equitably distributing a debtor's assets among competing creditors" (*Sherwood Partners*, 394 F.3d 1203). Under the code, a debtor or trustee may recover preferential payments, subject to federal court oversight. The same oversight does not exist under state law.

Assuming its decision is followed in California state courts (thus far, it has not),[36] the Ninth Circuit has eliminated an important protection for senior creditors—the power to attack insider self-dealing. Preemption doctrine is reducing the attractiveness of state law at the same time that Congress is increasing it.

Coherent bankruptcy policy must account for the interaction between state and federal law. It is unclear whether the current state-federal balance is optimal. State law offers a menu of alternatives for distressed small businesses—foreclosures, bulk sales, ABCs, compositions, receiverships, and other procedures. Businesses can sort themselves across these options, choosing the procedures that maximize the return to creditors and insiders. In this context, federal bankruptcy law serves only

35. The case is discussed in greater detail by Kurth and Cohen (2006).

36. Since that decision, two California courts of appeals have reached the opposite conclusion, thereby creating a split between state and federal appellate courts (*Credit Managers Ass'n v. Countrywide Home Loans, Inc.*, 144 Cal. App. 4th 590 [Cal. Ct. App. 2006]; *Haberbush v. Charles and Dorothy Cummins Family Ltd. Partnership*, 139 Cal. App. 4th 1630 [Cal. Ct. App. 2006]).

one function: a law of last resort when bargaining between debtors and senior creditors fails. There is no obvious reason why federal law is needed or well suited to perform this function. Indeed, if state laws offered a richer set of alternatives, including one that offered a strong mechanism for auditing the affairs of distressed businesses, there would be little use for federal law. And it is possible that a state mechanism would be superior to federal law. It would be the product of local political pressure, not lobbying at the national level, and so might be more sensitive to the conditions of local businesses. Federal law has long been criticized as being overly cumbersome and expensive for small businesses (see, for example, Haines and Hendel 2005, pp. 73–74; National Bankruptcy Review Commission 1997, p. 614). Largely the same procedures are used in cases involving small businesses as in those involving multinational corporations. Perhaps, then, policy makers should consider relaxing federal preemption doctrine in this area. Freed from the doctrine's constraints, states could better regulate their insolvency procedures and develop stronger mechanisms for auditing distressed businesses.

7. CONCLUSION

Current discussions of small business distress focus on federal bankruptcy law. These discussions should focus on state law, which is used by around 80 percent of failing businesses. The remaining 20 percent tends to include businesses that are highly distressed, encumbered by secured debts owed to multiple lenders, and unable to obtain creditor consent to use state procedures. Creditors withhold consent because the debtors have mismanaged their relationships with the creditors and because state procedures offer little protection against insider misbehavior. Federal bankruptcy filings, in other words, reflect bargaining failure: they occur only when debtors and senior lenders cannot reach agreement. The remaining, unanswered question is why federal law is needed to serve this function. State law could easily provide a procedure that the parties would use only as a last resort. Federal law appears to serve this function only because states have been discouraged—by preemption doctrine—from doing so. If states were given freedom to regulate more actively in this area, federal bankruptcy law would become largely irrelevant for small businesses.

APPENDIX: BANKRUPTCY AUDITS VERSUS STATE LAW AUDITS—A SIMPLE MODEL

Reconsider the model in the main text. Assume that the distressed business has one senior lender and n unsecured creditors. Graetz, Reinganum, and Wilde (1986) consider a similar environment in which the IRS must decide whether to audit taxpayers. Adapting their model to the present context, assume that the value of the firm's assets is private information. The senior lender can estimate only the value of the firm's assets, which are high (a_h) with probability q and low (a_l) with probability $1 - q$. Assume that the bank's claim exceeds both asset values: $s > a_h > a_l$.

Because the bank is uncertain about asset value, the manager can potentially keep some of that value for herself. The bank can prevent this by obtaining additional information about the value of the assets, but this requires an audit. Assume first that audits are possible only in federal bankruptcy court and that these audits are costly. They will generate cost t_2 to the bank and t_1 to the firm. At the conclusion of the audit, the bank has full information about asset value.

Consider the decision whether to audit. Assume that the difference in potential asset value, $\Delta = a_h - a_l$, exceeds the transaction costs of an audit, $t_1 + t_2$. The bank will, therefore, find it profitable to audit if it is certain that the assets are worth a_h but the manager is only reporting a_l.

Let $r(a)$ denote the asset value reported by the owner-manager. If asset value is low, the owner has no incentive to report dishonestly; she gains nothing from reporting a higher asset value. Therefore, $r(a_l) = a_l$. If asset value is high, the owner may submit a false report, $r(a_h) < a_h$, in order to keep for herself some of the difference in asset value, $a_h - a_l$. If, however, the owner submits a false report and the bank subsequently discovers this in bankruptcy, the owner suffers a penalty equal to b. In other words, a dishonest manager forfeits any gains from the bankruptcy process.

Let α denote the probability that the owner of a business with high asset value falsely reports low asset value. Applying Bayes's rule, the bank can compute the probability that, given a report of low asset value, the business actually has high asset value:

$$\mu(\alpha) = q\alpha/(q\alpha + 1 - q). \tag{A1}$$

Knowing this probability, the bank must decide whether to believe an owner-manager's report or to force the business into federal bankruptcy court. The bank will always believe a manager who reports high asset value. Thus, the problem for the bank is to choose a probability β of forcing a business into bankruptcy when the owner reports low asset value. This problem is equivalent to choosing β to maximize the bank's expected payoff:

$$\beta[\mu ah + (1 - \mu)(al - b) - t] + (1 - \beta)(al - b - \delta t), \tag{A2}$$

where δ is the owner's share of transaction costs avoided by using state procedures (δ will reflect the parties' relative bargaining power). This simplifies to

$$al - b + \beta[\mu(\Delta + b) - t] - (1 - \beta)\delta t.$$

Given the bank's audit strategy β, the owner-manager will choose a probability α of reporting false information about asset value. Assuming risk neutrality, the owner's problem is to choose α to maximize

$$\alpha[\beta(0) + (1 - \beta)(\Delta + \delta t + b)] + (1 - \alpha)[\beta b + (1 - \beta)(b + \delta t)], \tag{A3}$$

which simplifies to

$$b + \alpha[(1 - \beta)\Delta - b] + (1 - \beta)\delta t.$$

The bank will choose β conditional on the owner's choice α; the owner will choose α conditional on the bank's choice β. A Nash equilibrium consists of owner and bank strategies such that neither party prefers a different strategy, conditional on the other party's strategy.

Consider, first, the bank's optimal strategy. Its marginal benefit from increasing the probability of forcing a business into bankruptcy is

$$\mu(\Delta + b) - (1 - \delta)t. \tag{A4}$$

The marginal benefit of a bankruptcy filing is independent of β, the probability of forcing a business into bankruptcy. This means that the bank will choose federal bankruptcy law whenever equation (A3) is positive and choose state law whenever it is negative. Thus we can define μ' as the threshold probability such that equation (A3) is equal to zero:

$$\mu' = (1 - \delta)t/(\Delta + b).$$

If μ exceeds μ', the bank will force a business into bankruptcy; otherwise, it will accept the owner-manager's report. Recall that $\mu(\alpha) = q\alpha/(q\alpha + 1 - q)$. We can therefore simplify further and identify the threshold probability of misreporting by owner-managers, α':

$$\alpha' = [q/(1 - q)][(1 - \delta)t/(\Delta + b - (1 - \delta)t)]. \tag{A5}$$

Because $\mu(\alpha)$ is increasing in α, the bank will force a business into bankruptcy (that is, set β equal to one) if $\alpha > \alpha'$ and permit a state law procedure (set β equal to zero) if $\alpha < \alpha'$. If $\alpha = \alpha'$, the bank will set β equal to any value between zero and one. Note that α' is decreasing in δ and is equal to zero when δ is equal to one. Thus, unless the bank pays the owner-manager all of the transaction costs saved by state procedures, there will be a positive probability of false reports and a positive probability that the bank will audit the firm in bankruptcy. Note also that α' could exceed one if t is sufficiently large. If this occurs, the bank never forces businesses into bankruptcy.

Now turn to the owner-manager's optimal strategy. Her marginal benefit from increasing α is

$$(1 - \beta)(\Delta + b) - b. \tag{A6}$$

This is independent of probability α, which implies that the owner-manager will report assets honestly (that is, set α equal to zero) if equation (A6) is negative and will falsify information (set α equal to one) if it is positive. Solving for the threshold level β' that sets equation (A6) to zero, we obtain

$$\beta' = \Delta/(\Delta + b). \tag{A7}$$

The owner-manager will set α equal to one if $\beta < \beta'$ and set α equal to zero if $\beta > \beta'$. If $\beta = \beta'$, she will set α to any value between zero and one.

Multiple equilibria are possible here. If t is very large, so that $\alpha' = 1$, the equilibrium will consist of the owner-manager always falsifying information ($\alpha^* = 1$) and the bank never forcing the business into bankruptcy ($\beta^* = 0$). If t is sufficiently low that $\alpha' < 1$, the bank will force a business into bankruptcy only if $\alpha = \alpha'$. Thus, another equilibrium consists of owner-managers falsifying information with probability $\alpha^* = \alpha'$ and banks choosing federal bankruptcy with probability $\beta^* = \beta'$. This is an equilibrium, then, in which some distressed businesses will use state procedures, while others (with probability β^*) will use federal bankruptcy law.

This assumes that an audit is possible only in federal court. The foregoing analysis changes little when this assumption is relaxed. Suppose audits can be pursued under state law but that these audits generate noisy signals about asset value. The signal can be either high (v_h) or low (v_l). If the state audit yields a high signal, the probability that business assets have high value rises to $q_h > q$. If the signal is low, the probability of high-value assets falls to $q_l < q$. The bank now faces two decisions: (1) whether to audit first under state or federal law and (2) if it audits first under state law and receives signal v, whether to audit again under federal law in order to obtain certain information about asset value. Assume the bank audits first under state law. Will it ever audit again under federal law? Because the signal generated by a state law audit varies only the bank's beliefs regarding q, the analysis summarized in equations (A1)–(A7) is equally applicable to this question. For each signal $v \in \{v_h, v_l\}$, with its corresponding probability $q_i \in \{q_h, q_l\}$, there exists an equilibrium in which the bank audits again in federal court with probability $\beta_i \in \{\beta_h, \beta_l\}$.

This equilibrium exists, of course, because state audits are inferior to federal audits. State procedures do vary in the power they give creditors to audit businesses. In some states, businesses are required to submit financial statements to local courts; an owner-manager who falsifies this information will face civil or criminal sanctions. In addition, in some states creditors (or assignees) have the power to attack insider self-dealing or to sue creditors who received preferential treatment. When a state offers these kinds of regulations, it increases the ability

of senior lenders to resolve uncertainty surrounding asset value. If state regulations enable lenders to discover the true value of business assets, there will be no equilibrium in which lenders audit again under federal law. And if state audits are cheaper than federal bankruptcy filings, all audits will occur under state law. There will be no need for federal bankruptcy filings.

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